DOCUMENT RESUME

ED 142 931 CS 003 377

AUTHOR Raivetz, Mark J.; Summers, Anita A.
TITLE The Results of a Cross-Disciplinary Approach to the Study of Successful Reading Practices.
PUB DATE Apr 77
NOTE 20p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York City, April 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Educational Environment; *Effective Teaching; *Failure Factors; Grade 4; Intermediate Grades; *Multiple Regression Analysis; Reading Achievement; *Reading Instruction; Reading Programs; *Reading Research; Socioeconomic Status; *Success Factors; Teacher Characteristics

ABSTRACT

This paper describes the data gathered as part of the School District of Philadelphia/Federal Reserve Bank Cooperative Study of Successful Practices in the Teaching of Reading. The data base includes information about 25 schools, 25 principals, 25 reading teachers, 94 classroom teachers, 68 reading aides, and 1,828 fourth-grade students. The information is organized into five "sectors": student/socioeconomic status, school characteristics, teacher characteristics, instructional support, and the reading program. Regression runs were formulated to include variables from each sector, to run against the difference between third-grade and fourth-grade scores on the California Achievement Test of Reading. Some preliminary results from the analyses are discussed at a general level. Appendixes provide a complete list of the variables in each sector and a glossary of reading approaches and programs represented in the study. (AA)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED142931

THE RESULTS OF A CROSS-DISCIPLINARY APPROACH TO THE STUDY OF SUCCESSFUL READING PRACTICES

by

Mark J. Raivetz
Research Assistant
Priority Operations Evaluation Services
The School District of Philadelphia

and

Anita A. Summers
Research Officer and Economist
Federal Reserve Bank of Philadelphia

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Mark J. Raivetz

Anita A. Summers

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND THE ERIC SYSTEM CONTRACTORS."

Presented as Part of a Symposium on

AN URBAN SCHOOL DISTRICT/FEDERAL RESERVE BANK COOPERATIVE STUDY OF SUCCESSFUL PRACTICES IN THE TEACHING OF READING

at the Annual Conference of
The American Educational Pesearch Association

New York City
April 4-8, 1977

CS003377

I. Why a Cross-Disciplinary Approach

Any discussion of a "Cross-Disciplinary Approach to the Study of Successful Reading Practices" would be incomplete without some mention of those disciplines which are "crossing." While the broad social science label may be used to describe both educators and economists, historically the two disciplines did not have a great deal in common.

That educators examine schools, pupil achievement, successful programs and the like is hardly new. It is not uncommon to find groups of them (often broken into Divisions) convening annually to discuss their latest findings.

Economists study how scarce resources are allocated among alternative uses. Does a school district abandon all humanistic thinking by collaborating with people who speak of the GNP, NNP, SBA, or SEC? Hardly. A cross-disciplinary study is not the surrender of a discipline. The school district is exploring econometric techniques as a means of isolating those things most productive in helping children increase their reading achievement.

In the ever-expanding Social Science family, Education is the first cousin of Psychology. Psychology may be considered the bastard child of Physics (a legitimate member of the Physical Science family). Borrowing from physics, experimental psychologists did well in their animal labs. These techniques did not always hold, however, when subjects were children in classrooms. Not a group to ignore other areas in attempts to increase student achievement, educators have looked from anthropological studies to Doman-Delacato Patterning for answers. This study is an attempt to find answers from an economic perspective.

Economic techniques brought the profession into the analysis of large social issues, education among them, in the 1960's. Typically, economists approach problems with an eye toward maximizing efficiency. School systems are now experiencing fiscal crunches; they must improve the efficiency of their systems. Such improvement, educationally, requires a disciplined look at which existing school resources result in increased achievement. Economists look at systems in terms of inputs and outputs. They view learning as a production process. Educational achievement is the output; school resources, peer group characteristics and the individual characteristics are the inputs. This is not to say, however, that children in classrooms are like objects in an assembly line. When examining a production process, economists try to isolate the impact of a particular input on the output. In terms of schools, by holding all inputs unchanged but one (perhaps additional reading instruction) a change in the output (reading achievement) may be measured.

When educators raise questions about the results of their programs, or about "what works," they are asking "output" questions; the kinds of questions economists ask. Hence, "The Cross-Disciplinary Approach to the Study of Successful Reading Practices."

II. Studies that Brought us Together

The February 1975 Federal Reserve Bank of Philadelphia's Business Review published "Which School Resources Help Learning? Efficiency and Equity in Philadelphia Public Schools." The study concluded that certain school inputs do make a difference in achievement growth. To summarize major findings in elementary schools:

> .Students experienced larger rates of growth in achievement if they attend more, and their unexcused absences and latenesses are minimized.

.Students do better if their teachers graduated from higher-rated colleges.

.Students do better if their schools' racial make-up is 40-60 percent Black; if they are in classes of 33 or less; and if they are in schools with more high achievers.

.Black students perform better in smaller elementary schools.

.Low achieving students do better in classes with less than 28 students; and if they have new teachers.

.High achievers do best with experienced teachers.

These results, of course, were not all greeted without criticism.

The Office of Research and Evaluation has conducted several studies in an effort to determine successful practices in reading. These investigations, as outlined by Drs. Farber and Farmer in their paper, were inconclusive at best.

The FED broke new ground by examining educational inputs using pupil-specific data. Multiple Regression analysis was used. The precision of the data allowed them to examine, for example, the relationship between teacher experience and pupil achievement; Johnny Smith's teacher's experience, not the average experience of teachers in Johnny Smith's school, as Coleman had done. Further, it allowed them to examine whether or not inputs had different effects on different sorts of students. Thus, they asked statistically not whether being in a smaller class was better, but whether it was better for high achievers, medium achievers, and low achievers.

The FED found that the effects of many inputs were very different and that the importance assigned to school inputs in previous studies was likely to be due to not examining their differential impacts.

The Office of Research and Evaluation, after extensive study of School District programs and practices, has identified a number of classroom variables which they believe may relate to reading achievement.

The FED study did not incorporate many aspects of the classroom; it did not examine characteristics of the specialists associated with the program; and it did not examine the specific programs (in this case, reading approaches and programs) the child was exposed to. The current study incorporates all of these.

The FED's techniques and the Office of Research and Evaluation's knowledge of the system combined, as instruments were developed, data collected, and analysis begun on this important question. What affects reading achievement?

III. The Data: Examining what was Collected

The data collection effort resulted in a tremendous amount of information to process. This mass of data caused a somewhat pleasant problem. With so much, where do we start? Information on 25 Schools, 25 Principals, 25 Reading Teachers, 94 Classroom Teachers, 68 Reading Aides and 1,828 fourth grade Students provided a data base that could be mined for years.

Questionnaires were examined for completeness, reduced and coded where necessary, and examined again. Not only were Principals compared with Principals, etc., but all questionnaires from a school were examined together. This procedure led to the dropping of the Aide questionnaire. Since we could not attach an aide to a student with 100% accuracy, aide service "yes or no" became a classroom variable.

The within-school questionnaire comparisons also led to the dropping of several "control" questions included on each instrument; Principal, Reading Teacher, and Classroom Teacher. Questions were related to reading program planning and service. There was enough consistency among the respondents to drop the now redundant questions from all but one (usually the Principal's) questionnaire. In all, some 11 questions were dropped; five from the Reading Teacher, four from the Classroom Teacher and two from the Principal.

Separate files with frequency distributions were created from the Principal, Reading Teacher, Classroom Teacher, School and Student data. These files were sorted and merged into the final master file.

The file held a record for each student which contained the 162 variables that applied to him as a result of classroom and school assignment.

IV. The Data: Interpreting what was Collected

Once the data were examined, they had to be interpreted. The quality control processes and the 25% validation sample discussed in the two previous papers gave us every reason to believe the data we collected (all 1,828 students and 162 variables worth) was good, and therefore interpretable.

The first step in interpretation had to be some way to consistently and accurately identify the variables. The computer package we used required eight character labels for variables. Our original files included Principal, Reading Teacher, Classroom Teacher, School, and Student variables. By assigning the initial letter of the file to the first character of the label, variables were immediately identifiable:

- .P (Principal)
- .R (Reading Teacher)
- .T (Classroom Teacher)
- .S (School)
- .K (Kids/Students)

The remaining seven characters were abbreviated descriptions of what the variables measured. As a result, a rather strange language developed among the members of the group. Discussions of RCONSLDO, TPOBNOY, PYRSHERE, SRDGHOMO and KUNEXABS were not uncommon.

A further aid in interpreting the data and preparing for regression runs was the concept of SECTORS[1]. The large number of P,R,T,S and K variables were collapsed rather neatly into five sectors:

[1] APPENDIX A identifies all variables by sector.

1. The Student/Socio-Economic Status Sector consists of individual student characteristics of race, sex, family income, absences and achievement.

2. The School Characteristics Sector consists of variables which describe the school; its capacity, enrollment, racial composition, attendance, achievement, staff, and economic indicators.

3. The Teacher Characteristics Sector consists of the educational background and experience of each teacher as well as the teacher's race, sex, teaching strategies, perceptions and attendance.

4. The Instructional Support Sector consists of the combined Principal and Reading Teacher files, as well as some Teacher variables that have to do with support of the reading program.

5. The Reading Program Sector consists of those variables which actually describe the approach and program as well as activities that directly relate to the teaching of reading.

Regression runs were formulated in order to include variables from each sector to run against the dependent variable; the difference between third and fourth grade scores on the California Achievement Test of Reading.

Since the study is primarily concerned with successful practices in reading, among the most critical variables were students' reading approaches and programs[2]. Four approaches were included as variables in each regression run. The approaches are Specific Skills, Traditional Basal, Linguistic Basal, and Linguistic Programmed. These approaches represented 12 commercial programs.

An attempt was made to examine the variables through the use of Factor Analysis. The group originally felt that this procedure might reduce the large number of variables. Should several similar variables load together and "make sense," then just one need be entered into a Multiple Regression equation rather than all of them. Separate Factor Analyses were performed for each of the five original files; Principal, Reading Teacher, Classroom Teacher, School and Student. While there were some factor loadings that made sense, none held up under split-half cross validation, and Factor Analysis

---

[2] The Approach is that philosophical concept on which programs are based. The Program is that commercial material that is used as a curricular base. Those approaches and programs identified in the study are presented in APPENDIX B.

was dropped. The independence of all the variables, it was felt, would prove beneficial for Multiple Regression.

V. Preliminary Results

Only a few interpretive comments can be made appropriately now, since the regression analysis has just gotten underway.

Some very preliminary results suggest that, all other things being equal, when the Reading Teacher has more graduate courses in reading and language arts, the students read at higher levels. When he or she has received more staff development sessions, the students do better. Activities like visiting reading programs outside the school, consultant services from District Office staff or from program publishers, or the number of years a Reading Teacher was a classroom Teacher appear to have little effect. One SES variable has clear negative effects on learning; the child's number of unexcused absences. This was also a strong finding of the Summers-Wolfe study, where it was regarded as a surrogate for motivation.

In general we are out to find what aspects of a Teacher's training and development, what aspects of a Reading Teacher's training and services, what aspects of a Principal's training and administering, what classroom procedures, what SES characteristics of the students, what school-wide characteristics, and what specific programs used are most effective in producing reading achievement; specifically for fourth graders. What is ineffective will be as important to delineate as what is effective. The harsh discipline of fiscal difficulties makes the ineffective inputs particulary relevant. True accountability requires an open-minded review of both.

APPENDIX A

SCHOOL DISTRICT OF PHILADELPHIA
FEDERAL RESERVE BANK COOPERATIVE STUDY
VARIABLES LISTED BY SECTOR

DEPENDENT VARIABLE = KCATCGR4 - KCATCGR3 = CATGAIN

INDEPENDENT VARIABLES BY SECTOR

1. Student/Socio-Economic Status Sector: Individual student characteristics of race, sex, family income, absences and achievement.

KRACE	Race of pupil
KBINCOME	Pupil Block Income Number by race
KDAYPRES	Days present to third report period
KDAYSABS	Days absent to third report period
KUNEXABS	Unexcused absences to third report period
KTMSLATE	Times late to third report period
KINDERGN	Kindergarten attendance
KNUMRESI	# of Residences since entering school
KYRSSCHL	# of years in present school in terms of years and months
KSESAT72	SESAT Letters and Sounds Raw Score 1972
KCATCGR3	CAT Comprehension ADSS, Grade 3
KCATCGR4	CAT Comprehension ADSS, Grade 4
KBUSOCRD	Child bussed to relieve overcrowding

II. School Characteristics Sector: Variables which describe the schools; its capacity, enrollment, racial composition, attendance, achievement, staff and economic indicators.

School organization for reading instruction

SRDGHETE	Heterogeneous
SRDGHOMO	Homogeneous

Grade organization of school

SGRDORG5	K-5 organization
SGRDORG6	K-6 organization
SGRDORG7	K-7 organization
SAGE1976	Age of school (June 1976)
SCAPACTY	School capacity
SAVGROLL	Avg. on roll Sept. - June
SPCTADA	% Avg. daily attendance
SPTMOBIL	School mobility (by percent;) # admits divided by avg. on roll
S RETAIN	# Retained in grade
STITIELG	Title I eligible
SPCTAFDC	% AFDC (April 1976)
SPCTNOWK	% non-white
SPCTLT16	% Scoring less 16%ile gr. 1-5
SPCTGT84	% Scoring more 84%ile gr. 1-5
SPCTRGR4	%ile rank of mean, grade 4 1976 CAT
SNTEACHR	# Classroom teachers
SPCRTLT2	% Classroom teachers, less than two years experience
SPCTNOWT	Professional staff racial composition % non-white
SPCTABS	Rate of staff absence (from Principal T&A)
SMINCSFA	Median income of School Feeder area (children in public school, 1970 census)

III. Teacher Characteristics Sector: Variables covering the educational background and experience of each teacher as well as the teacher's race, sex, teaching strategies, perceptions and attendance.

TSEX	Sex of teacher
TRACE	Race of teacher
TYEARSCT	# years classroom teacher
TISTYRSH	First year teaching in school
TISTGRD4	First time teaching grade four
TREQSCHL	Requested assignment to school
TGRADRLA	# Graduate Rdg. & Lang. Arts Courses
TATTCONF	Seminar, Conference, Workshop attendance
TRPINVOL	Tchr. involvement in Rdg. Plan Development
TRPINVNY	Tchr. involvement in Rdg. Plan
TPSTFDEV	Tchr. perceptions of Rdg. Staff Development

Teachers' perceptions of obstacles in attaining Rdg. Pgm. objectives in class

TPOBTIME	Time (insufficient)
TPOBSTUD	Students (too many; varied abilities; lack basic skills)
TPOBSUPP	Support (lack of aides; materials)
TPOBCCLI	Class Climate (discipline; work habits; parent neglect; attendance.)
TPOBNOY	Perceive obstacles
TNABSENT	# Tchr. absences
TPPNOABS	# Pay periods where tchr. records no absences
TNTESCOR	Tchr NTE score where present
TGOURMAN	Gourman Rating of undergraduate school of teacher

IV. Instructional Support Sector: Combines Principal and Reading Teacher files as well as some Teacher variables that have to do with support of the reading program.

RSEX	Sex of Rdg. Tchr.
RRACE	Race of Rdg. Tchr.
RYEARSCT	# Years Rdg. Tchr was classroom tchr.
RGRADRLA	# Rdg. & Lang. Arts courses by R.T.
RVISITRP	Rdg. Tchr visits outside Rdg. Programs
RATTSTFD	Staff Development
RATTPROF	Professional organizations
RCONSLDO	# Times R.T. received consultant service from District Office
RCONSLPB	# Times R.T. received consultant service from publishing co.
RHRTEACH	# Hours R.T. teaches students
RVSTCRBR	Rdg. Tchr classroom visits scheduled only by request of principal or classroom teacher
RHLPSTRC	Help structure classroom for instruction
RDEMINST	Demonstrate instructional techniques in classroom
RPVDPINF	Provide professional information to teachers
PSEX	Sex of principal
PRACE	Race of principal
PYEARSCT	# Years principal was classroom teacher
PBRDGEXP	Reading experience
PBADMEXP	Administrative experience
PHIGHDEG	Principal's highest degree
PELEMCTF	Principal has elem. certificate
PREADCTF	Principal has rdg. certificate
PYEARS	# Years as principal
PYRSHERE	# Years principal in present school

PVISITRP	Principal visited outside rdg. pgms
PRPLAYHP	Lay help in rdg. plan development
PREVSTPG	Principal reviews student performance when monitoring rdg. pgm.
PCONSLDO	# Times principal receives consultant service from District office
PCONSLPB	# Times principal receives consultant service from publishing co.
PSUCCESS	Principal's perceptions of success in attaining rdg. pgm. objectives.
PPOBHOME	Lack of support from home; poor environment
PPOBSUPP	Lack of support from School District (people, materials)
PPOBSTEXP	Lack of teacher expertise
TCONSLDO	# Times consultant service from District Office
TCONSLPB	# Times consultant service from publishing co.
TPRTAVAL	Tchr. perception of Rdg. Teacher availability
TNCONRTM	# individual professional contacts with rdg. tchr/month
TPROBSRP	# Principal observations during Rdg. period
TPRFEED	Principal Feedback after observation

V. Reading Program Sector: Variables which actually describe the reading program. These include the basic approach and program as well as activities that directly relate to the teaching of reading.

TNAIDEWK	# Times/week Tchr has aide
TADMOSTI	Service Aide performs first most often
T33TUTOR	Aide tutor students
T33DISTR	Aide distributed materials
T33PREPM	Aide prepares materials
T33MTEST	Aide marks tests

T33GROUP Aide works with small groups

T33DISCP Aide disciplines students

T33PNONE Aide performs no service

TADMOST2 Service Aide performs second most often

T34TUTOR Aide tutors students

T34DISTR Aide distributes materials

T34PREPM Aide prepares materials

T34MTEST Aide marks tests

T34GROUP Aide works with small groups

T34DISCP Aide disciplines students

T34PNONE Aide performs no service

TADLEAST Service Aide performs least

T35TUTOR Aide tutors students

T35DISTR Aide distributes materials

T35PREPM Aide prepares materials

T35TEST Aide marks tests

T35GROUP Aide works with small groups

T35DISCP Aide disciplines students

T35PNONE Aide performs no service

TNSTURDG # students in class for reading

TAMRDGNY A.M. READING

TMINRDG # Minutes/Day Rdg. Lesson

Grouping Used During Rdg. Lesson

TGPINDIV Individualize

TGPSMALL Small group

TGPWHOLE Whole class,

Additional Instruction for Pupils with Rdg. Problems

TADDINSP Professional

TADDINSN Para-professional, Teacher's use of classroom library

TCLIBIFT Individual, free time 1= no 2= yes

TCLIBAIW	Tchr. assigned work
TTRDTOCL	# Times/week tchr. reads to class
TMRDTOCL	# Minutes/week tchr reads to class
TMINORDG	# Minutes/week tchr has individual independent reading
TVSCHLIB	Frequency of visits to school library
TBRDGAPP	Basic reading approach in classroom
T55SPSKL	Specific Skills approach
T55TBASL	Traditional Basal approach
T55LNBSL	Basal linguistic approach
T55LNPGM	Programmed linguistic approach
TBRDGPGM	Basic Reading Programs in class
T56SPSKL	Specific Skills program
T56BANKS	Bank Street Basal program
T56GINNB	Ginn Basal program
T56HARCT	Harcourt Brace Jovanovich Basal Program
T56STFOR	Scott Foresman Basal Program
T56HOUGH	Houghton Mifflin Basal Program
T56OPNCT	Open Court Basal Program
T56LIPPI	Lippincott Linguistic Basal Program
T56SUBRL	BRL Sullivan Programmed Linguistic Prg
T56MCGRAW	McGraw Hill Sullivan Prog Ling Program
T56MCORM	McCormick Basal Program
T56AMBCO	American Book Co. Basal Program
TISTRDGM	First year using basic rdg. program
TMODRDGM	Tchr. modifies basic rdg. program
TSELRDGM	Tchr. would select same basic rdg. pgm. if given free choice
TSUPRDGM	Tchr. uses supplementary materials in addition to basic program

APPENDIX B

A GLOSSARY OF READING APPROACHES AND PROGRAMS

In compiling a glossary of reading approaches and programs, it is necessary to make several statements concerning the way in which the information is presented. While "program" is the term most often used when referring to the teaching of reading, this process also includes the approach, strategy or method, and classroom organization. The following definitions were used in assembling the glossary:

Approach (Why)	that philosophical concept on which programs are based (e.g., traditional basal, linguistic basal, language experience, traditional programmed, linguistic programmed)
Program (Why)	that commercial (or teacher made) material that is used as a curriculum base
Strategy of Method (How-When)	the technique used by the teacher to implement a program - how one teaches it, e.g., three times a week in small groups for 35 minutes in the morning
Organization (How)	whole class group individual

BASAL APPROACH (Traditional)

This approach utilizes a graded series of "readers" as its basic component with many supplementary materials. Beginning with the development of a sight vocabulary, basals generally feature controlled vocabulary and skills with emphasis on comprehension. Basals are usually identified by the name of the publisher.

BASAL Programs:

American Book
Bank Street
Ginn
Harcourt Brace Jovanovich
Houghton Mifflin
McCormick
Open Court
Scott Foresman

BASAL APPROACH (Linguistically Oriented)

This approach utilizes a graded series of "readers" as its basic component. In these series, words are presented in groups based on sound-symbol relationships. Short vowels are usually presented first.

BASAL Programs: (Linguistically Oriented)

Lippincott

This is a basal system which features a linguistic approach. Sound-Spelling relationships are stressed as the most direct and reliable path to meaning. Both decoding and comprehension are emphasized.

Merrill

This is a program for a primary grade based on the principles of structural linguistics. Features include the use of major spelling patterns as the basic vocabulary, minimum contrast as a means of teaching word recognition, stories which emphasize cumulative meanings, and the exclusion of pictures from the textual material.

PROGRAMMED APPROACH (Linguistically Oriented)

This is basically a linguistic approach with a strong decoding emphasis. The presentation of material is in small steps (frames). A response is required from the learner and immediate feedback is provided. Comprehension materials are used in conjunction with the program.

Programmed Programs (Linguistically Oriented)

B.R.L. - Sullivan
McGraw Hill-Sullivan

SPECIFIC SKILLS APPROACH

This is basically an approach involving different sets of recommended materials at varied skill levels. Materials cover the areas of decoding, study skills, comprehension, and literature. Various publisher and teacher-made programs are used in an effort to supplement basic reading instruction (Basal, B.R.L., etc.) in the classroom. In some secondary schools, these materials comprise the basic program. They include, but are not limited to:

Barnell Loft Specific Skills Program
Continental Press Reading Thinking Skills
Durrell Murphy Phonics Practice Program
Phonics We Use - Lyons and Carnahan
Random House Skillpacers
Readers Digest Practice Pads
Reading for Concepts
Scholastic Press
S.R.A. Reading Labs